

## REMARKS

In response to the Office Action dated July 9, 2009, Applicants respectfully request reconsideration based on the above claim amendments and the following remarks. Applicants respectfully submit that the claims as presented are in condition for allowance.

Claims 1-14 and 23-29 are pending in the present Application. Claims 1, 10 and 23 are amended, leaving Claims 1-14 and 23-29 for consideration upon entry of the present amendments and following remarks.

Support for the claim amendments can at least be found in the specification, the figures, and the claims as originally filed. Particularly, support for amended independent Claims 1, 10 and 23 is at least found in originally filed Figures 3 and 4, and in the specification at page 9, lines 14-16.

No new matter has been introduced by these amendments. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

### Claim Rejections Under 35 U.S.C. §103

Claims 1-14 and 23-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim, et al., International Publication WO 01/45283 A1 (hereinafter “Kim”) in view of Kikkawa et al., U.S. Patent No. 6,879,359 (hereinafter “Kikkawa”). Applicants respectfully traverse the rejections for the reasons set forth below.

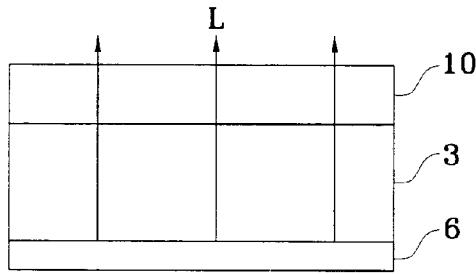
Amended independent **Claims 1, 10 and 23** similarly recite, *inter alia*:

“a first substrate including a plurality of unit cells and a first transparent electrode, each of the unit cells having i) a sensor thin film transistor for receiving a light reflected from a fingerprint to generate electric charges corresponding to an intensity of the reflected light, ii) a storage device for storing the electric charges, iii) a first switch thin film transistor for receiving the electric charges from the storage device to output the electric charges in response to an external control signal;

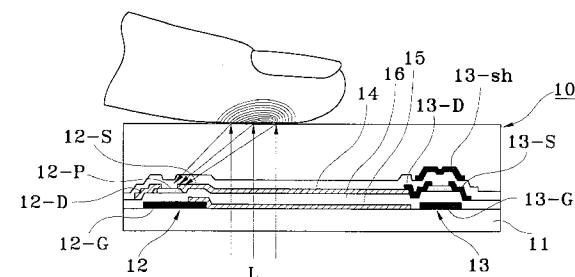
*the first transparent electrode being disposed on a lower surface of the first substrate, the first transparent electrode making contact with the lower surface of the first substrate, the lower surface opposing a surface including the unit cells, wherein no additional substrate for forming the first transparent electrode is provided.”*

Regarding **Kim** in the instant Office action at Pages 2 and 3, transparent substrate 11 and LCD display 3 in Figures 4-6 of Kim (Figures 4 and 5 reproduced below) are respectively considered as teaching the “first substrate,” the “liquid crystal layer/second substrate” of the claimed invention.

**FIG.4**

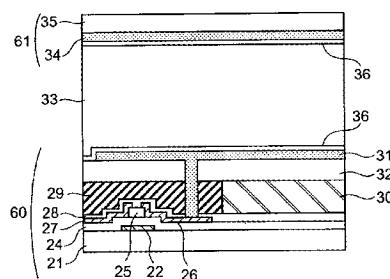


**FIG.5**



It is conceded in the instant Office action that Kim does not explicitly teach the LCD display 3 having a first transparent electrode, a second substrate having a second transparent electrode, a color filter and a second switch TFT, wherein the first transparent electrode is in contact with the lower surface of the first substrate and the liquid crystal layer contacts the first transparent electrode.

Regarding **Kikkawa** in the instant Office action at Pages 3 and 4, and referring to the LCD in Figure 3 of Kikkawa (reproduced below), opposite electrode 34, substrate 21, pixel electrode 31, color filter 30 and gate 22/source 26/drain 27 are respectively considered as teaching the “first transparent electrode,” the “second substrate,” the “second transparent electrode,” the “color filter” and the “second switch TFT” of the claimed invention. That is, the LCD of Kikkawa includes a first substrate 61 and a second substrate 60.



**Fig.3**

Regarding **independent Claims 1, 10 and 23** in the instant Office action at Pages 3 and 4, it is asserted that it would have been obvious to one skilled in the art at the time of the invention was made to combine the Kikkawa LCD panel into the Kim fingerprint terminal 1) in order to obtain an LCD device having both a data display function and a fingerprint capture function and 2) since it has been held that making an old device portable without producing any new and expected result involves only routine skill in the art. As a result, it is concluded that the opposite electrode 34 of Kikkawa (as the “first transparent electrode”) would be in contact with a lower surface of a first substrate (*as a combination of substrate 11 of Kim and substrate 35 of Kikkawa*), and the liquid crystal layer 33 of Kikkawa would contact the opposite electrode 34 of Kikkawa (as the “first transparent electrode”), as claimed.

In making a Section 103 rejection, the Examiner bears the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1998). The Examiner “. . . can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in art would lead that individual to combine the relevant teachings of the references”. *Id.*

Since the fingerprint reader 10 and the LCD panel of Kim are *separate from each other*, since the fingerprint reader 10 of Kim includes one substrate (11), and since the device of Kikkawa (substituted for the LCD panel of Kim) includes two substrate 60 and 61, there would be a total of three substrates in the resulting combined structure of Kim and Kikkawa.

Problems associated with this three-substrate structure are described in the specification at page 2, line 18 to page 4, line 7 with reference to Figure 2 of the claimed invention. However, since the claimed invention integrates the sensor for sensing the fingerprint into the first substrate of the device, the total number of substrates is advantageously reduced to two, thereby simplifying the device. Since the combination of the *objective teachings* of Kim and Kikkawa would lead one of ordinary skill in the art to include three substrates, contrary to the present invention as described, claimed and illustrated, there exists *no suggestion or motivation in the references or to one of ordinary skill in the art to modify or combine Kim and Kikkawa to teach the first transparent electrode being disposed on a lower surface of the first substrate, the first transparent electrode making contact with the lower surface of the first substrate, the lower surface opposing a surface including the unit cells, wherein no additional substrate for*

**forming the first transparent electrode is provided** of amended independent Claims 1, 10 and 23.

Applicant respectfully submits that Kim and Kikkawa do not provide any *objective teaching* that would lead one of ordinary skill in the art to combine Kim and Kikkawa to teach the limitations of at least amended independent Claims 1, 10 and 23. Accordingly, *prima facie* obviousness does not exist regarding at least independent Claims 1, 10 and 23, as amended, since the requirements of *prime facie* obvious are not met.

Furthermore, in part b. of the response to Applicant's arguments on Pages 7 and 8 of the instant Office action, it is stated that the combination of Kim and Kikkawa described in part a., which includes the making of the substrate 11 of Kim and the substrate 35 of Kikkawa into one element, would result in the claimed invention and would *improve a size of a device*. Applicants understand part b. to 1) be asserting that the "improving a size of a device" is a teaching, suggestion or motivation found in the knowledge generally available to one of ordinary skill in the art (e.g., Official Notice) that would lead that individual to combine the relevant teachings of the references, and 2) be conceding that there exists no objective teaching in Kim and Kikkawa that would lead that individual to combine the relevant teachings of the references.

Applicants respectfully submit that Official Notice without documentary evidence to support an examiner's conclusion is permissible only in some circumstances. (MPEP 2144.03(A.)) It would not be appropriate to take official notice of facts without citing prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well known. *Id.* For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art. *In re Ahlert*, 424 F.2d at 1091, 165 USPQ at 420-21 and MPEP 2144.03(A.).

Kim and Kikkawa are related to liquid crystal displays (LCDs). Applicants respectfully submit that no citation to a reference, demonstrating a standard in liquid crystal displays, especially in the reduction of a size or making a compact display, has been offered in the instant office action to support the Examiner's assertion that to "improve a size of a device (e.g., a compact size," two separate substrates of two separate devices specifically taught by two separate references are somehow combined into one, so that the first transparent electrode being

disposed on a lower surface of the first substrate, the first transparent electrode making contact with the lower surface of the first substrate, the lower surface opposing a surface including the unit cells, wherein no additional substrate for forming the first transparent electrode is provided of amended independent Claims 1, 10 and 23.

Since more than a mere combination of Kim and Kikkawa, and more specifically a modification of making substrate 11 of Kim and substrate 35 of Kikkawa into one element, is required to allegedly teach the claimed invention, and since both Kim and Kikkawa pertain to liquid crystal displays, Applicants respectfully submit that these two cited references do not establish a standard in liquid crystal displays, particularly in improving a size of a device by combining separate substrates. Consequently, Applicants respectfully request documentary evidence to support the assertion that it is “well known in the art” that to “improve a size of a device (e.g., a compact size),” two separate substrates of two separate devices specifically taught by two separate references are somehow combined into one, so that the first transparent electrode being disposed on a lower surface of the first substrate, the first transparent electrode making contact with the lower surface of the first substrate, the lower surface opposing a surface including the unit cells, wherein no additional substrate for forming the first transparent electrode is provided of amended independent Claims 1, 10 and 23.

Furthermore, since Kim and Kikkawa relate to the pertinent art and do not teach or suggest, and in fact are silent to ways or methods of reducing a size of the LCD structures, Applicant respectfully submits that Examiner’s assertion is not capable of *instant and unquestionable* demonstration as being well known. (MPEP 2144.03(A.)) Therefore, Applicants respectfully submit that it is not well known in the art of liquid crystal displays that to reduce a size of an LCD structure, separately taught substrates are combined. Accordingly, the relevant obvious rejections of amended independent Claims 1, 10 and 23 cannot be maintained.

Applicants further submit that the rejection of independent Claims 1, 10 and 23 merely alleges but does not show that knowledge generally available to one of ordinary skill in art would lead that individual to combine the relevant teachings of the references to disclose the claimed invention. Accordingly, *prima facie* obviousness does not exist regarding at least independent Claims 1, 10 and 23, as amended, since the requirements of *prime facie* obvious are not met.

Moreover, in part c. of the response to Applicant's arguments on Pages 7 and 8 of the instant Office action, it is stated that the upper substrate (35) of Kikkawa can be directly attached to the lower substrate of the fingerprint reader (10) of Kim, the substrate 11 of Kim and the substrate 35 of Kikkawa can be formed together for a compact display purpose, and therefore merely combining the liquid crystal display panel 3 of Kim with the device of Kikkawa would result in the claimed invention as well.

Applicants respectfully note that a mere combining of Kim and Kikkawa, which results in a combined structure including three substrates, meets the stated motivation of "obtain an LCD device having both a data display function and a fingerprint capture function" in the rejection details. However, the combined structure meeting the above motivation still results in the liquid crystal layer 33 only contacting the (upper) second transparent substrate 35 of Kikkawa, not any portion of the fingerprint reader 10 of Kim, contrary to the claimed invention.

Applicants further respectfully note that a mere combining of Kim and Kikkawa by directly attaching the upper substrate of Kikkawa to the lower substrate of the fingerprint reader of Kim, *does not meet* the stated motivation of "improving a size of the device." Instead, to achieve a "more compact display" of the second motivation stated in the Response to Arguments, again, one would have to first combine the LC panel 3 of Kim and the LCD of Kikkawa, and then *further omit* one of the lower substrate of the fingerprint reader 10 of Kim or of the upper substrate of the LCD of Kikkawa.

Applicants find *no teaching, suggestion or motivation* in Kim and Kikkawa to omit either the lower substrate of the fingerprint reader 10 of Kim or of the upper substrate of the LCD of Kikkawa. Applicants further submit that neither Kim nor Kikkawa as a whole provide a reason for one of ordinary skill in the art to further modify Kim and Kikkawa by omitting one of the lower substrate of the fingerprint reader 10 of Kim or of the upper substrate of the LCD of Kikkawa, such that the liquid crystal layer 33 of Kikkawa contacts "a first substrate including a sensor thin film transistor and a first switch thin film transistor" as claimed. *In re Laskowski*, 871 F.2d 115, 117, 10 U.S.P.Q.2d 1397, 1398 (Fed. Cir. 1989) ("Although the Commissioner suggests that [the structure in the primary art reference] could readily be modified to form the [claimed] structure, '[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification'") (citation omitted); *In re Stencil*, 828 F.2d 751, 755, 4 U.S.P.Q.2d 1071, 1073 (Fed. Cir. 1987)

(obviousness cannot be established “by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion that the combination be made”).

Additionally, if the liquid crystal layer 33 of the combined structure including the LC panel 3 of Kim and the LCD of Kikkawa, were to contact a substrate of the “first substrate including a sensor thin film transistor and a first switch thin film transistor” as claimed, one would have to go beyond a mere combining of Kim and Kikkawa which results in a combined structure including three substrates where the liquid crystal layer 33 still only contacts the (upper) second transparent substrate 35 of Kikkawa. To achieve the liquid crystal layer 33 of Kikkawa contacting “a first substrate including a sensor thin film transistor and a first switch thin film transistor” as claimed, one would have to first combine the LC panel 3 of Kim and the LCD of Kikkawa, and then *further omit* one of the lower substrate of the fingerprint reader 10 of Kim or of the upper substrate of the LCD of Kikkawa, which clearly does not amount to mere combining.

For purpose of this response, even if Kim and Kikkawa *could* be modified as suggested in the instant Office action, since Kim and Kikkawa do not suggest the desirability of the modification, and since to achieve the liquid crystal layer 33 of Kikkawa contacting “a first substrate including a sensor thin film transistor and a first switch thin film transistor” as claimed would involve more than *mere combining* of the references, there further exists *no suggestion or motivation in the references or to one of ordinary skill in the art to modify or combine* Kim and Kikkawa to teach the first transparent electrode being disposed on a lower surface of the first substrate, the first transparent electrode making contact with the lower surface of the first substrate, the lower surface opposing a surface including the unit cells, wherein no additional substrate for forming the first transparent electrode is provided of amended independent Claims 1, 10 and 23.

Finally, Applicants respectfully submit that the Examiner has used an improper standard in arriving at the rejection of the above claims under section 103, based on improper hindsight, which fails to consider the totality of Applicant’s invention and to the totality of the cited references, Kim and Kikkawa. More specifically the Examiner has used Applicant’s disclosure to select portions of the cited references to allegedly arrive at Applicant’s invention. In doing so, the Examiner has failed to consider the teachings of the references or Applicant’s invention as a

whole in contravention of section 103, including the disclosures of the references which teach contrary to Applicant's invention.

In applying Section 103, the U.S. Court of Appeals for the Federal Circuit has consistently held that one must consider both the invention and the prior art "as a whole", not from improper hindsight gained from consideration of the claimed invention. See, *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985) and cases cited therein.

According to the *Interconnect* court :

"[n]ot only must the claimed invention as a whole be evaluated, but so also must the references as a whole, so that their teachings are applied in the context of their significance to a technician at the time - a technician without our knowledge of the solution. "

*Id.* Also critical to this Section 103 analysis is that understanding of "particular results" achieved by the invention. *Id.*

When, as here, the Section 103 rejection was based on selective combination of the prior art references to allegedly render a subsequent invention obvious, "there must be some reason for the combination other than the hind sight gleaned from the invention itself." *Id.* Stated in another way, "[i]t is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." *In re Fritch* 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992).

Considering the teaching of Kim and Kikkawa, combining the LC panel 3 of Kim and the LCD of Kikkawa results in a structure including three substrates where the liquid crystal layer 33 still only contacts the (upper) second transparent substrate 35 of Kikkawa. That is, the teachings of Kim and Kikkawa, and particular results of combining the LC panel 3 of Kim and the LCD of Kikkawa, are contrary to the claimed invention.

To achieve the liquid crystal layer 33 of Kikkawa contacting "a first substrate including a sensor thin film transistor and a first switch thin film transistor" as claimed, one would have to first combine the LC panel 3 of Kim and the LCD of Kikkawa, and then *further omit* one of the lower substrate of the fingerprint reader 10 of Kim or of the upper substrate of the LCD of Kikkawa. As there is *no teaching, suggestion or motivation* in Kim and Kikkawa to further modify the combined structure of Kim and Kikkawa to teach a liquid crystal layer interposed between the first and second substrates, the liquid crystal layer contacting the first

**transparent electrode disposed on the lower surface of the first substrate, the first transparent electrode being disposed on a lower surface of the first substrate, the first transparent electrode making contact with the lower surface of the first substrate, the lower surface opposing a surface including the unit cells, wherein no additional substrate for forming the first transparent electrode is provided** of amended independent Claims 1, 10 and 23, Applicants submit that the claimed invention has been used as an instruction manual or ‘template’ to piece together the teachings of Kim and Kikkawa, then to further modify the particular results outside of the teaching of Kim and Kikkawa, so that the claimed invention is rendered obvious. Therefore, the Examiner has used an improper standard in arriving at the rejection of the above claims under section 103, based on improper hindsight, which fails to consider the totality of Applicant’s invention and to the totality of the cited references, Kim and Kikkawa, and thus the rejection over Kim and Kikkawa is improper and should be withdrawn.

Thus, since Kim and Kikkawa, alone or in combination, *fail to teach or suggest all of the limitations of* at least amended Claims 1, 10 and 23, since the combination of the *objective teachings* of Kim and Kikkawa would lead one of ordinary skill in the art to include three substrates contrary to the claimed invention, since no citation to a reference demonstrating a standard in liquid crystal displays, especially in the reduction of a size or making a compact display involving combining separate substrate has been offered in the instant office action, since Kim and Kikkawa relate to the pertinent art and do not teach or suggest and in fact are silent to ways or methods of reducing a size of the LCD structures involving combining substrates so as to demonstrate a standard or what is capable of *instant and unquestionable* demonstration as being well known, since even if Kim and Kikkawa *could* be modified as suggested in the instant Office action, Kim and Kikkawa do not suggest the desirability of the modification, since to achieve the liquid crystal layer 33 of Kikkawa contacting “a first substrate including a sensor thin film transistor and a first switch thin film transistor” as claimed would involve more than *mere combining* of the references, since the claimed invention has been used as an instruction manual or ‘template’ to piece together the teachings of Kim and Kikkawa, then to further modify the particular results outside of the teaching of Kim and Kikkawa to teach the claimed invention, and since the Examiner has used an improper standard in arriving at the rejection of the above claims under section 103, based on improper hindsight, which fails to consider the totality of

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Response dated: October 9, 2009  
Reply to Office action dated: July 9, 2009

Applicant's invention and to the totality of the cited references, *prima facie* obviousness does not exist regarding at least amended independent Claims 1, 10 and 23 with respect to Kim and Kikkawa.

Applicants respectfully submit that independent Claims 1, 10 and 23 are not further rejected or objected and are therefore allowable. As Claims 2-9, 11-14 and 24-29 variously depend from Claims 1, 10 and 23, they are correspondingly allowable. Reconsideration, withdrawal of the relevant §103 rejections, and allowance of Claims 1-14 and 23-29 are respectfully requested.

### **Conclusion**

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

Applicants hereby petition for any necessary extension of time required under 37 C.F.R. 1.136(a) or 1.136(b) which may be required for entry and consideration of the present Reply.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicants' attorney hereby authorizes that such fee be charged to Deposit Account No. 06-1130.

Respectfully submitted,

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